UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,897	08/28/2003	Kouji Yamada	4041K-000150	8694

27572 7590 11/07/2006

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER	
MORILLO, JANELL COMBS	
ART UNIT	**PAPER NUMBER**
1742	

DATE MAILED: 11/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/650,897	YAMADA ET AL.	
	Examiner	Art Unit	
	Janelle Combs-Morillo	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,4,6,8-11,13,14 and 18-25* is/are pending in the application.

4a) Of the above claim(s) *8-11,13,14 and 23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,4,6 and 18-22, 24-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 2, 4, 6, 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sperry in view of Rogers (US 5,484,492).

Sperry teaches a high strength aluminum casting alloy comprising (in weight%): 7-20% Si, 0.1-0.6% Mg, 0.1-1% Ag, 3.5-6% Cu (abstract), up to 0.7% Mn (column 2 line 50-51), up to 1.5% Fe (column 2 lines 59), which overlaps the presently claimed alloying ranges.

Sperry does not mention the addition of modifier to said Al-Si casting alloy. However, Rogers teaches that modifiers are added to Al-Si alloys in order to control the primary Si segregation and growth (column 10 lines 25-26). Such modifying additions include: Sr, Na, K, Ce, Y, Lanthanide series elements (column 10 lines 19-34). It would have been obvious to one of ordinary skill in the art to add a modifier as taught by Rogers to the Al-Si alloy taught by Sperry, because Rogers teaches that modifiers are added to Al-Si alloys in order to control the primary Si segregation and growth (column 10 lines 25-26).

Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility. Because

the prior art of Sperry and Rogers teaches an overlapping alloy composition, then it is held that Sperry combined with Rogers has created a prima facie case of obviousness of the presently claimed invention.

Concerning claims 4, 18, and 20, Sperry teaches casting at high temperatures of 1250-1500°F, solution heat treating at 850-975°F (454-524°C) for 1-40 hrs, and aging at 300-500°F (149-260°C) for 1-24 hrs (column 1 lines 60-67). Concerning the gas included in the aluminum alloy casting, Sperry does not mention a significant amount of gas is contained in said alloy.

Concerning claim 6, Sperry teaches casting at high temperatures of 1250-1500°F, solution heat treating at 850-975°F (454-524°C) for 1-40 hrs, and aging at 300-500°F (149-260°C) for 1-24 hrs (column 1 lines 60-67). Concerning the gas included in the aluminum alloy casting, Sperry does not mention a significant amount of gas is contained in said alloy.

Concerning claim 19, Rogers teaches that modifiers (such as Ce, Y, Lanthanide series elements, column 10 lines 19-34) are added to Al-Si alloys in order to control the primary Si segregation and growth (column 10 lines 25-26).

Concerning claim 21, though Sperry does not specify the sizes of eutectic Si, and various other compounds in said alloy product, because Sperry teaches substantially overlapping alloying ranges, as well as an overlapping heat treatment, then substantially the same microstructural characteristics are expected to occur.

3. Claims 22, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sperry and Rogers and in further view of Ichinose et al (US 5,993,576).

Neither Sperry nor Rogers specify forming said Al-Si-Cu alloy into a scroll for a compressor of an air conditioner. However, it would have been obvious to one of ordinary skill

in the art to form the Al-Si-Cu alloy taught by Sperry into a variety of automotive/ mechanical/ electrical parts, because Ichinose teaches that substantially similar Al-Si-Cu alloys are formed into wear resistant scrolls having excellent fatigue strength and toughness (column 2 lines 1-3).

Concerning claims 24 and 25, it is held to be within the scope of the prior art to form said Al-Si-Cu alloy into a vane rotor or brake housing, because the combination of Sperry, Rogers, and Ichinose teaches a Al-Si-Cu alloy that can be formed into a variety of automotive parts, electric appliances, and mechanical parts (Ichinose column 2 lines 10-11).

Response to Amendment/Arguments

4. In the response filed on August 24, 2006 applicant cancelled claims 1, 3, 5-7, 12, 15-17, amended claims 6 and 24, and submitted various arguments traversing the rejections of record.

5. Applicant's argument that the present invention is allowable over the prior art of record because Sperry and Rogers are not combinable because secondary reference Rogers teaches elements not in primary reference has not been found persuasive. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Secondary reference Rogers is relied on to teach the addition of common modifiers to similar Al-Si casting alloys, beneficial to modify/refine the eutectic phase (see also above discussion), and therefore the motivation to combine references is properly taught by the prior art.

Applicant's argument that the present invention is allowable over the prior art of record because Sperry teaches the addition of high Ti amounts where the instant invention does not *require* high amounts of titanium has not been found persuasive, because the instantly claimed alloy ("comprised of" various alloying elements) does not exclude said high Ti amounts. Even so, it is unclear that an alloy of the instant invention without high amounts of titanium achieves unexpected results with respect to the prior art of record.

6. Applicant's argument that the present invention is allowable over the prior art of record because the addition of a rare earth element avoids casting defects and minimizes the amount of evolved gas has not been found persuasive, because applicant has not shown specific unexpected results with respect to the prior art of record.

7. Applicant has not clearly shown specific unexpected results with respect to the prior art of record or criticality of the instant claimed range (wherein said results must be *fully commensurate in scope* with the instantly claimed ranges, etc. see MPEP 716.02 d). To establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range. *In re Hill*, 284 F.2d 955, 128 USPQ 197 (CCPA 1960).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCM
November 1, 2006

ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700